International Journal of Agricultural
Science and Research (IJASR)
ISSN (P): 2250-0057; ISSN (E): 2321-0087
Vol. 9, Issue 3, Jun 2019, 215-220

CONSTRAINTS AND MAJOR SUGGESTIONS IN ADOPTION OF POTATO PRODUCTION TECHNOLOGY IN WESTERN UTTAR PRADESH

ANKIT SINGH YADAV[1]*, R. N. YADAV[2], D. K. SINGH[3] & DAN SINGH[4]

[1]*Research Scholar, Department of Agricultural Extension and Communication, Sardar Vallabhbhai Patel University of Agriculture & Technology, Meerut, Uttar Pradesh, India*

[2]*Professor, Department of Agricultural Extension and Communication, Sardar Vallabhbhai Patel University of Agriculture & Technology, Meerut, Uttar Pradesh, India*

[3]*Professor & Head, Department of Agricultural Extension and Communication, Sardar Vallabhbhai Patel University of Agriculture & Technology, Meerut, Uttar Pradesh, India*

[4]*Associate Professor, Department of Agricultural Extension and Communication, Sardar Vallabhbhai Patel University of Agriculture & Technology, Meerut, Uttar Pradesh, India*

ABSTRACT

The study was conducted in Hapur district of Western Uttar Pradesh state find out Constraints and major suggestions in adoption of potato production technology.80 farmers selected as respondents from five villages were selected from one block of one district for the study. The potato respondents faced the constraints in adoption of potato production technology i. e. lack of knowledge about plant protection measures got with 76.25 percent responses in study area. Due to lack of knowledge and awareness regarding plant protection measures, no respondents another constraints that less number of production technology information training centers with 75.00 percent responses in the whole study area followed by Unavailability of high yielding varieties 71.25 percent and lack of knowledge about balance fertilizer application 63.75, got respectively. There was no place like farmer's information center or other from where the respondents can get the information about new innovations in the field of improved farm management and clarify their doubts. At the village level, there were no implement workshops from where the information of modified improved technology can be obtained by the potato growers.

KEYWORDS: Sampling, Respondents, Constraints, Potato, Percentage, Frequency & Rank Order

Received: May 08, 2018; **Accepted**: May 29, 2018; **Published**: May 15, 2019; **Paper Id.**: IJASRJUN201933

Original Article

INTRODUCTION

Potato (*Solanumtuberosum* L.) being a short duration crop, it produces more quantity of dry matter, edible energy and edible protein in lesser duration of time than cereals like rice and wheat. (Anonymous2013). The area under horticultural crops including potato which was 12.77 million hectare during 1991-1992 has increased 23.13 million hectares during 2012-2013. As compared to 257.1 million tonnes of food grain production during 2013-2014, the total horticulture production was 268.9 million tonnes percentage share of vegetable production in the total horticulture production was highest 60.3% during 2013-2014 as compared to other horticulture crops. The total horticulture production was highest in case of West Bengal (292lakhMT) followed by Andhra Pradesh (289.13 lakh MT) during 2013-2014, the highest production of fruits of 139.39lakh MT was recorded in Andhra Pradesh (17.1% Share) followed by 97.85 lakh MT in Maharashtra (12.00%) share the highest production of vegetables (57.70%) was in West Bengal followed by 12.10 % in Uttar Pradesh. Uttar Pradesh is the fifth largest State in the country in

terms of area and first in terms of population

Potato has attained the status of the most important cash food crop in Uttar Pradesh as well as in India. It is rightly named as King of useable in the world. U. P. along produces nearly 43 percent of India's total production of potato. It has more special feat me such as wide Regional and seasonal adoptability and suitability to various type of soil pH and structure, capability to produce economic biomass in the shortest possible time, suitability in a wide crop rotation and the highest yield in terms of energy, biological nutritive value, protein and carbohydrate per hectare per day which are not present in any crop. It is suitable time to carry the technology, developed by the agricultural universities and research station to the farmer's field and to convert it into production. The main task today is to narrow this gap so that the farmers in general may get the same level of production as is obtained at the research station and can accelerate their socio-economic standard.

Food Value and Other Uses

Potato is an important crop for the high population areas of Asia because it produces more dry matter food, well balanced protein and more calories from per unit area of land and time than other food crops. The problem of malnutrition and it can be largely solved, if potato is accepted as major food and not merely as a vegetable in our country. Potato is a nutritional food and it contains practically all the essential dietary constituents like cereals, carbohydrates which are the major constituents of potato. Besides, it contains essentials nutrients as proteins and minerals like Calcium, Phosphorus, Iron, and Vitamins. About 50% of potato produced in the World is utilized as human food. It has been revealed that, according to FAO, potato is consumed by more than one billion people the all over the world. It is a high quality vegetable cum food crop and used in preparing more than 100 types of recipes in India. The popular Indian recipes like Samosas and Aalu Parantha's are prepared from potato. The protein of potato has high biological value than proteins of cereals and even better than that of milk. The biological value of a mixture of egg and potato is higher than the egg alone. Hence, potato can be supplement of meat and milk products for improving their taste, lowering energy intake and reducing food cost. Nutritional point of view, potato is a wholesome food and deserves to be promoted as a potential high quality vegetable cum food crop in the country.

RESEARCH METHODOLOGY

The study was conducted by using ex-post facto research design was used. The study was carried out in purposively selected Hapur district of Western Uttar Pradesh during 2015-16. Hapur district comprises of 4 blocks in which one block namely Hapur was purposively selected. The revenue villages was arrange in descending order based on the number of potato growers, top five revenue villages were selected from Hapur block. Thus the total numbers of 5 villages were selected for the investigation. From the selected each village's 16 respondents were selected randomly, thus the total 80 respondents were selected as a study sample. Structured pre-tested interview schedule was developed and used for data collection. The data was collected with help of personal interview method. For data analysis mean, frequency, percentage and rank order statistics were used to draw the meaningful conclusion.

RESULTS AND DISCUSSIONS

Constraints in technological gap of the potato production despite well expanded extension network an outcome of a number of negative forces operating in the field conditions. These force/impediments affect the attainment of desired objectives. This is evident from farmer's poor knowledge of technologies. Thus, it warranted for deep probe of such

constraints, which affected the attainment of desired objective. Keeping in view, the constraints perceived by the potato growers in using advanced production technology, which scientist recommend were carefully identified and analyzed. The results of this investigation have been discussed under different practices and management issues. Uses of modern inputs technological gap of technology in agriculture are undoubtedly more important in increasing farm productivity. In India considerable changes have been brought about in traditional agriculture during recent years through various programmes involving use of modern input and new technology for potato cultivation. However, the progress is not yet up to the desired level of satisfaction. The technologically gap in technological gap of recommended technologies by potato growers upon various factors as well as constraints faced by them. Constraints refer to the item of difficulties in actual technological gap of the potato production technology. 16th potato constraints were faced by potato respondents in the technological gap of the potato production technology in study area.

Table 1: Frequency, Percentage and Rank Order of the Potato Growers According to Various Constraints in Adoption of the Potato Production Technology

N=80

S. No	Constraints	Frequency	Percentage	Rank
1.	Small Size of land holding.	27	33.75	XIV
2.	Unavailability of high yielding varieties.	57	71.25	III
3.	Lack of knowledge about plant protection measurements.	61	76.25	I
4.	Unavailability of critical inputs in government sales centers.	36	45.00	X
5.	Lack of knowledge about quality seed chemicals.	30	37.50	XIII
6.	High cost chemicals.	37	46.25	IX
7.	High cost of new variety seed.	41	51.25	VII
8.	Shortage of cold stores.	33	41.25	XII
9.	Less number of production technology/ information training centers.	60	75.00	II
10.	Government tube wells are not available.	49	61.25	V
11.	High cost of irrigation charges.	34	42.50	XI
12.	Unavailability of organic manure.	26	32.50	XV
13.	Lack of knowledge about bio fertilizer.	20	25.00	XVI
14.	Lack of knowledge about balance fertilizer application.	51	63.75	IV
15.	Lack of knowledge about micro nutrients.	39	48.75	VIII
16.	Higher labour wage.	44	55.00	VI

The descriptive as well as data of the Table 1 revealed that the lack of knowledge about plant protection measures got 1st rank with 76.25 percent responses in study area. Due to lack of knowledge and awareness regarding plant protection measures, no respondents were following them and another constraints that less number of production technology information training centers 2nd rank with 75.00 percent responses in the whole study area followed by Unavailability of high yielding varieties 71.25 percent and lack of knowledge about balance fertilizer application 63.75, got rank 3rd and 4th respectively. There was no place like farmer's information center or other from where the respondents can get the information about new innovations in the field of improved farm management and clarify their doubts. At the village level, there were no implement workshops from where the information of modified improved technology can be obtained by the potato growers.

Another major problem reported by more than 61.25 percent respondents were Government tube well are not available 5th rank order followed by high labour wage 55.00 percent and high cost of new variety seed 51.25 percent and

got rank 6th and 7th respectively. Another constraint which was reported by 48.75 percent of lack of about micro nutrients and got 8thrank and high cost chemicals were also reported to constraints by 46.25 percent of the respondents and unavailability of critical input in government sales center 45.00 percent and got 9th and 10th rank order and followed high cost of irrigation charges were also reported by 42.50 percent of the respondents and got 11th rank order. Another major constraints shortage of cold stores of respondents was also reported by 41.25 percent respondents and got 12th rank order.

In the area of study another major problem lack of knowledge about quality seed, chemicals and Small size of land holding 37.50 percent and 33.75 percent respondents reported got 13thand14th rank order respectively. Another major problem of the potato growers reported that unavailability of organic manure 32.50 percent and lack of knowledge about bio fertilizer respondents and got last 15th rank order and16th rank order respectively.

CONCLUSIONS

The potato respondents faced the constraints in adoption of potato production technology i. e. lack of knowledge and awareness regarding plant protection measures, information training centers, Unavailability of high yielding varieties, lack of knowledge about balance fertilizer application, Government tube well, high labour wage, high cost of new variety seed, lack of about micro nutrients high cost of chemical, unavailability of critical input in government sales center, high cost of irrigation charges, Shortage of cold stores, lack of knowledge about quality seed, chemicals and Small size of land holding, unavailability of organic manure, lack of knowledge about bio fertilizer for potato growers.

Suitable Extension Strategies for Promotion of Quality Potato Production

On the basis of the results of this study the following suggestions may be made to increase knowledge and adoption level of potato growers for production of quality potato in the study area. Keeping the observations and analysis of collected data in mind it becomes the necessary to develop some extension strategies for the promotion of quality potato production. In this direction an attempt was made by the investigator to systematically prepare a schedule of information which can be given to farmers through various extension agency teaching aids.

Lack of knowledge was identified as major constraints in qualitative potato production. It is therefore, suggested that extension workers should organize potato growers in different groups. They should plan knowledgeable program for the respondents so they can be motivated toward the potato cultivation and can increase their knowledge about quality potato production practices through extension work like, group discussion, training, demonstration, exhibition, etc.

The information and knowledge regarding improved tools and techniques can be provided by the training and demonstration of such tools and techniques. At the time of demonstration respondents should also be encouraged to participate in it. This will make them to understand that the technology is also suitable for them.

On the basis of the results of this study the following suggestions may be made to increase knowledge and adoption level of potato producers for production of quality potato in the study area.

- Create knowledge and awareness about improved potato production technology to the potato growers through trainings, meetings, demonstrations and media exposure on different aspects of potato production in the study area.
- To study the unit effect of the socio-economic and technological variables in the decision making process of the farmers.

- Government should install government tube wells in every village and irrigation water should be provided at reasonable rates to the farmers.
- Loans should be provided at cheaper rates to the farmers to install their own tube wells and to purchase agricultural inputs and equipment.
- Crop insurance against all calamities, incidence of insect-pests and disease etc. Should be introduced at nominal premium.
- Timely provide fertilizers and plant protection chemicals should be made available within easy reach, convenient pack and at cheaper prices.
- Government zonal research stations, SAUs, KVKs, NGOs and timely training to the potato growers on the all aspects of potato production technology.
- Conducted trainings and demonstration programmes for the identification of harmful and beneficial insects-pests in study area for potato growers.
- Govt. should provide sufficient facilities and tools of technology for field study and e-choupal for quick transfer of improved potato production technology for potato growers.
- Organize time to time on farm training for farmers on different aspects of potato production technology related to using for cultural, biological, mechanical and chemical methods for reducing insect- pest, diseases and weeds in the potato growers.
- Provide regular electricity in rural area for proper storage of potato and plant protection materials like bio-agents, bio-fertilizer etc.
- Local storage facilities should be created by the government so that the farmers can store their product at nominal charges.
- Increase the educational facilities in the villages to improve the educational status.
- Increase numbers of information / training centres / potato research unit for sufficient quality potato production and quick transfer of potato production information technology in the study area.

ACKNOWLEDGEMENT

I acknowledge to department of Agricultural Extension & Communication, College of Agriculture, S. V. P. University of Agriculture and Technology Meerut for providing all the short facilities required for conducting the research.

REFERENCES

1. *Ajay Kumar., Suhag, K. S. and Bhatia, J. K. (2011) Production and marketing constraints of vegetable growers in Haryana. Haryana Journal of Agronomy, 27(1/2):74-76.*
2. *Anonymous (2013) Handbook of Agricultural Science- Published by Indian Council of Agricultural Research (ICAR), New Delhi.*
3. *Anonymous (2014) National Horticulture Database, National Horticulture Board, Gudgawn, Hariyana.*

4. *Bhople, R. S. and Ambarkar, K. S. (1996) Production, storage and marketing constraints of vegetable growers. PKV Research Journal; 20(1):31-33.*

5. *Deka, C. K. Mukhopadhyay, S. B. Shantanu Kumar (2014) Constraints in potato cultivation in Assam: farmers experiences. International Journal of Agricultural Sciences; 10(2):488-492.*

6. *HiralalJana Basu, D. and Kole, R. K. (2013) Problems faced by vegetable growers in using pesticides in Nadia district of West Bengal. Environment and Ecology; 31(2C):1133-1138.*

7. *Kassim, N. A., Nerway, Z. A., & Yousif, K. H. (2014). Potato virus Y (PVY) surveying and its economic importance on potato crop. Intl. J. Res. Appli, Nat. Soc. Sci, 2(6), 39-46.*

8. *Krishnamurthy, A. T., Kumar, V. B. S., Basavaraju, H. K. and Ahamed, B. Z. (2008) Adoption level and constraints in adoption of improved practices among vegetable growers of Chikmagalur district, Karnataka. Environment and Ecology; 26(2A):888-891.*

9. *Kubrevi, S. S. (2009) Constraints in adoption of improved variety of potato. Environment and Ecology; 27(2A):813-815.*

10. *Panja, S., Mandi, V., Bhattacharya, C., & Sarkar, K. K. (2016). Performance of True Potato Seed (TPS) Hybrids in Gangetic Alluvial Zone of West Bengal. IASET: International Journal of Agricultural & Bio-Chemical Science (IASET: IJABS) ISSN (P): Applied.*

11. *Lal, B. Sinha, T. K. Anil Kumar Pandit, A. Pandey, N. K. (2011) Constraints perceived by the farmers in adoption of potato technology. Potato Journal 38(1):73-77.*

12. *Muttaleb, M. A. Hossain, M. A. Rashid, M. A. (1998) Adoption level and its constraints of selected recommended potato technology. Bangladesh Journal of Training and Development; 11(1/2):101-108*

13. *Patel, B. M., Patel, J. K. and Badhe, D. K. (2012) Constraints faced by potato growers in adoption of recommended potato production technology. International Journal of Agricultural Sciences; 8(2):502-504*

14. *Samantaray, S. K., Prusty, S. and Raj, R. K. (2009) Constraints in vegetable production-experiences of tribal vegetable growers. Indian Research Journal of Extension Education. 9(3):32-34.*